

The Chemical Age

A Weekly Journal Devoted to Industrial and Engineering Chemistry

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Scientific Training for Management

HERE are those who declare that life was just as difficult in the last century as at present. They affirm that the successful man had to work as hard in those days as now, and that the qualities of mind and stamina that were then necessary to carry a man to success have not changed with the passing years. Our own view, and there may be many to dispute it, is that though we may not necessarily be "better" men than our fathers, we are different. We play harder, we work harder, the pace of life is immensely greater, and the amount of knowledge and experience needed to reach the top of the industrial tree are greater to-day than ever they were. To-day, as in the nineteenth century, there are geniuses, men of outstanding capability who rise from the back street to wealth and power without educational advantages. Is it not true, however, that their number is decreasing, and that the growth of the great business corporation is closing the door to men of this category? It is, thank Heaven, still possible in this country for a man of initiative, but untutored, to rise from poverty to affluence by the exercise of natural gifts. We heard of such a one the other day who started life as a boy running errands for an engineer in charge of constructional work, who kept his eyes open and so rose till, when nearing middle age, he became a constructional engineer himself, and who, a few years later, became a contractor on his own account and is now employing thousands of men. As long as the smaller businesses exist, so long will this state of affairs persist, but the steady encroachment of the great corporations in all business fields will cut away the chances of success for this type of man. We do not wish to be understood as inimical to the great modern businesses. We do but record the change that is taking place.

In every sphere of life we are doing things that our fathers failed to do. This is true whether we speak in terms of athletic records, of engineering feats, of chemical manufactures, or of the ordinary amenities of existence. It is equally true in the educational sphere. Not twenty years ago the recognised method of advancement in nearly every business was to start in one department or another as the equivalent of the office boy, and through tedious but regular channels to wait for promotion until that goal of youth, the manager's office, was reached. Anyone who believed that management required anything more than experience allied with certain natural qualities perhaps best described as ability to "boss" one's fellows, would have been laughed to scorn. Even to-day it is not usual to find

trained chemists on the Boards of chemical companies, save in certain enlightened exceptions. A new conception of management is upon us, however. With the increasing complexity of industry, the tasks that confront the management have multiplied exceedingly. The frame of mind and the extent of knowledge necessary to make great decisions correctly require something more than the old-time ability to get the maximum amount of work out of a given squad of men.

We have seen the rise of the trained industrial chemist—and it is well to remind ourselves sometimes that there were very few trained chemists, judged by to-day's standards, 25 years ago. The clerical work is similarly performed by trained men, trained accountants, trained secretaries and the like. Firms have their own legal departments, and their own patent departments. Everything is specialised. Now it appears, management is to be specialised also.

Not long ago, Lord Leverhulme, who is himself the President of the International Committee of Scientific Management, said that the need for training the young for the atmosphere of scientific management which they would find awaiting them in business was increasingly realised. He declared that the bulk of our educational facilities at present were planned to assist the student occupying relatively junior posts, and that the problem before us was to discover how to train students for higher administrative posts. Our own immediate reaction to this suggestion would be that management is hardly a subject suitable for teaching to students. There is a psychology of management which could be so taught, but this is a branch of psychology. The simplest solution is to declare that instruction in psychology should be a part of the training of all who enter industry whether on the commercial or the technical side. The utmost that can be expected in training students appears to us to be to teach fundamental principles. The rest must be garnered by experience.

Is leadership synonymous with management? If so, then we unhesitatingly declare that management can never be taught. Leadership demands character, tact, ability to take decisions and to carry them through, the power to inspire enthusiasm in others, allied to a certain indefinable something which can only be described as "charm." These things cannot be taught; and because a manager must be a leader in some degree, we are inclined to hold that there are severe inherent limitations in "training for management."

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NOTES AND COMMENTS

Co-operation in Research

CO-OPERATION between Britain and France, which has been such an encouraging feature of the present conflict, has now extended to the realm of science. Important conferences are now taking place in this country between British scientists and a French delegation led by M. Longchambon, Director of the National Centre of Scientific Applied Research. This National Centre has under its control almost all the French research laboratories, mobilised with their staffs since the war began. The Service Departments pass on their problems to the Centre, which passes them on to the appropriate laboratories. The delegation, which will pay visits to British laboratories, has already been welcomed by Sir Albert Seward, vice-president of the Royal Society, Professor F. G. Donnan, and Professor E. V. Appleton, secretary of the Department of Scientific and Industrial Research. The French Centre is similar in many respects to the D.S.I.R.

Petroleum Research

INTENSIVE research in petroleum science was advocated by Professor A. W. Nash, of Birmingham University, in his presidential address to the Institute of Petroleum in London yesterday. Teams of laboratory workers should be employed on problems whose solution is necessary for ultimate victory over the enemy. Professor Nash, whose subject was "The Development of Petroleum Refining," said that, despite advances, the production of chemical intermediates from petroleum is still but in its infancy, and it is only by organised research that we can hope to advance our knowledge in this respect. It should be borne in mind, to quote only one case, that the method of manufacture whereby the cost of iso-octane was reduced from £5 to well below 2s. a gallon has been perfected within the last three years. Triptane, which is believed to have anti-knock properties even better than those of neo-hexane, and has so far been prepared by the hydrogenation of the olefine formed by the dehydration of 2:2:3-trimethyl butanol-3, is a discovery that has been made only within the last twelve months.

The value of research to the future of industry and to the industrial life of the nation cannot be overestimated and at the present time research is of greater necessity than ever, particularly when the nation is engaged in a scientific war and when, as is well known, all the scientific men still remaining on enemy territory have been organised and are fully employed on professional work.

The Cracking Process

"PRESENT-DAY distillation and cracking plants are so flexible as to be capable of handling almost every type of crude oil or distillate, from the heaviest oils to the lightest spirits, or even gases. The cracking process has contributed more towards the conservation of crude oil than any development in the history of the petroleum industry, for to have produced all motor fuel requirements from straight-run gasoline would have necessitated the raising of enormous quantities of crude oil, with the subsequent production of other fractions, far in excess of requirements. This would have led to such waste that it would have upset the economic efficiency of the petroleum industry of the world, because to-day nearly half the gasoline consumed is produced by cracking." On the question of synthesis, Professor Nash said that during the last few years much research had been devoted towards the building up of new molecular structures. According to Egloff, gasoline of 125 octane number, having 50 per cent. greater power output than present 100-octane gasolines, has been produced experimentally in petroleum laboratories. The cost per gallon of this fuel has been reduced by more than 98 per cent., thanks to experiments carried out over a period of one year—that is, from just over £720 to just over £10 a gallon. It is hoped that the cost may be reduced sufficiently in the near future to permit commercial production. Superoctane gasolines are a major requirement of the nation's flying forces. American refineries are now producing the world's only adequate supply of fighting-grade aviation spirit.

Mercury Purification

SEVERAL methods are known for purifying mercury such as treatment with dilute nitric acid, vacuum distillation, electrolysis and (as recently proposed) blowing with a current of air. According to Dr. A. Dobrowsky (*Chem. Z.*, Jan. 17, 1940, p. 32) a process with advantages over all of them is based upon treatment with aqueous permanganate solution. The mercury in a thick-walled bottle is covered over with a layer of cold-saturated potassium permanganate of the same height and vigorously shaken. In a short time the colour changes to green or brown and the manganese dioxide emulsifies the mercury to a heavy mud. Purification may be considered complete when a sample does not change the colour of the permanganate after 30 seconds. If a repetition of the treatment is found necessary after applying this test, the mass is shaken up with water and decanted before adding fresh permanganate. The manganese dioxide is finally removed by filling up the bottle with water, shaking, decanting and then acidifying with dilute nitric acid, when the manganese dioxide dissolves and the mercury droplets immediately coalesce. After filtration the mercury may be run through perforated sized paper (writing paper) to get rid of filter fibres. Very thorough purification so as to yield "physically pure" mercury is ensured by the fact that the surface offered as a result of dispersion is 1,000 to 10,000 times greater than in the nitric acid process. The permanganate process is thus particularly effective in the case of very badly contaminated batches of mercury.

Oxidation of Ferrous Salts

AN extensive study of the oxidation of ferrous salts in aqueous solutions is reported by Pound (*J. Phys. Chem.*, 1939, 43, 8, 955-967). The rate of oxidation by air was followed by means of the permanganate titre of the solutions, which were maintained at approximately constant temperatures. The general rule that ferrous salts solutions oxidise more rapidly, the higher the *pH*, was confirmed on solutions of the chloride, sulphate, and nitrate, of $N/10$ strength. The rate of oxidation was also found to be proportional to the square of the concentration; strong solutions differed essentially in their behaviour from the more dilute ones in showing an increased rate of oxidation as the acidity increased, up to an optimum depending on the nature of the salt. The ferrous salts of weak acids (phosphoric, acetic, citric, succinic) all oxidised much more rapidly, at equivalent concentrations, than those of strong ones, which is attributable to the higher *pH* of the weak salt solutions. The behaviour of the phosphate is, however, outstanding, and reflects an apparently catalytic effect of the phosphate ion, since phosphoric acid itself, added to ferrous sulphate or chloride solution, accelerates the rate of oxidation enormously. Nitric acid up to 0.5 mol., added to the sulphate solution, had very little effect on the oxidation, but an increase on this amount caused rapid oxidation

without passing air through the liquor. Oxides of nitrogen liberated by the addition of sodium nitrite also acted as direct oxidants. Apart from phosphoric acid, hydrochloric acid in high concentrations exerted a catalytic effect on the oxidation, as also did platinum black.

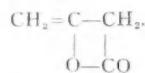
Substitute Fuel in France

BOTH chemical and military circles in France are complaining of the slowness which has been shown in the development of methods for producing substitute fuels in France. Discovered years ago by the French chemist Marcellin Berthelot, the principle of the hydrogenation of solid fuels for the production of synthetic petrol has been applied to a greater or lesser extent nearly everywhere, except in France, where only two small experimental plants producing only a few thousand gallons of fuel, exist. Some years ago, credits were allotted for the construction of two large plants, one to treat Landes coal and the other Decazeville coal, but for some mysterious reason these have never been built. The Government has, however, now undertaken the construction of a plant for the production of fuel alcohol by hydrolysis of wood or scrap cellulose. All the sugars contained are first removed, and then fermented to produce ethyl alcohol. In this direction also, it is pointed out, France is considerably behind both Germany and Italy, which have already such plants in operation.

Diketene

A New Industrial Chemical

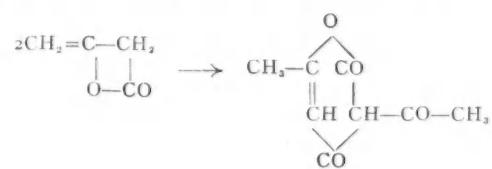
THE ketene dimer, diketene, is now available in commercial quantities in America. Because of its exceptional reactivity, its industrial importance lies in the valuable products which may be synthesised from it. Diketene is a colourless, nonhygroscopic liquid, insoluble in water but soluble in the common organic liquids inert toward it. It is intensely pungent, and its vapours are extremely lachrymatory. Its boiling point is 127.4° C. and it melts at -6.5° C. The most acceptable structural formula would appear to be:



Its physical properties and reactions are described at some length in *Ind. Eng. Chem.* (Jan. 1940, 16-22) by A. B. Boese, junr., of the Mellon Institute of Industrial Research, Pittsburgh, Pennsylvania. Diketene reacts with hydroxyl groups to form acetoacetic esters such as ethyl acetoacetate, with amino groups to form acetoacetamides such as acetoacetanilide, and with phenyl hydrazines to form phenylmethylpyrazolones. When reacted with ureas, diketene forms 4-methyluracils, and the reaction between diketene and aromatic hydrocarbons in the presence of aluminium chloride yields 1,3-diketones such as benzoylacetone. Halogens add to diketene to form γ -haloacetoacetyl halides, and β -butyrolactone is formed when diketene is hydrogenated.

On standing at ordinary temperatures, diketene slowly polymerises to a dark-coloured tarry material containing a substantial quantity of a tetramer of ketene, dehydroacetic acid. But in order to isolate this economically it is essential to carry out the polymerisation under controlled conditions. This treatment is best accomplished by adding diketene slowly at $70-120^{\circ}$ C. to an inert solvent containing a small amount of catalyst. As catalysts, tertiary amines, such as pyridine, triethylamine, and methylmorpholine, and alkali metal salts of hydroxyl compounds, such as sodium ethylate and sodium butylate, have been found most efficient; aromatic hydrocarbons, such as benzene and toluene, are most suitable as sol-

vents. When polymerised under these conditions, diketene, yields from 60 to 80 per cent. dehydroacetic acid:



Dehydroacetic acid is a colourless, crystalline compound melting at 109° and boiling at 274° C.; from a chemical standpoint it is noteworthy for the large number of derivatives into which it may be transformed by the action of acids and alkalies under varying conditions. Among them might be mentioned the formation of triacetic lactone, acetylacetone *pH*, and isodehydroacetic acid by the action of strong sulphuric acid, and of diacetylacetone and dimethylpyrone which result from the hydrolysis of dehydroacetic acid with concentrated hydrochloric acid.

By pyrolysis at $500-600^{\circ}$ C., diketene is depolymerised almost completely to ketene and thus affords a method for the rapid production of high-purity ketene. Ketene is a highly toxic gas boiling at -56° and melting at -134.6° C. When inhaled in low concentration, it leaves a peculiarly disagreeable taste in the mouth and slight irritation in the lungs and nasal passages which persists for several hours. Curiously this effect is greatly heightened by smoking or by the mere presence of tobacco smoke in the atmosphere. The tendency of ketene to polymerise is even more marked than that of diketene; it cannot be stored in the gaseous state or in solution but must be reacted immediately after preparation.

Ketene is a powerful acetylating agent; it reacts in general with compounds having an active hydrogen atom to give the corresponding acetyl derivative. Phenyl acetate and acetyl-salicylic acid (aspirin), for example, have been prepared in almost quantitative yields by reacting ketene with phenol and salicylic acid, respectively.

E.P.T. EXPLAINED

Methods of Assessment and Reliefs Available

ALTHOUGH assessments for Excess Profits Tax will be made on Income Tax (Schedule D) principles, there are differences in procedure, and a separate assessment will be made for the new tax which is additional to Income Tax. Assessments will be made on actual profits for the chargeable accounting period and not in respect of the preceding year as with Income Tax, and the tax is due one month after date of assessment. The tax is chargeable from April 1, 1939, and assessments will be for periods of twelve months, that is ordinarily, but as the ending date of a period can be the year-ending date of the particular firm's accounting period (as under Schedule D) with the start of the tax April 1, 1939, the chargeable accounting period for the first year may be shorter than twelve months. For example, if a firm's year ends on December 31, the period may be nine months (April 1 to December 31, 1939).

Determination of Procedure

The tax chargeable will be 60 per cent. of any excess in current profits over and above the profits called "standard profits" assessed in a pre-war period called "the standard period." The age of a business will determine the standard period: if the business was started on or before January 1, 1935, the taxpayer has the option of his standard period being either the year 1935 or 1936 or if he prefers two-year periods (with profits divided by two) 1935 and 1937 or 1936 and 1937; where the business was started after January 1, 1935, but on or before January 1, 1936, the standard period can be either 1936 or 1936 and 1937 (two-year method); if commenced after January 1, 1936, and on or before July 1, 1936, the taxpayer can choose any period of twelve consecutive months ending not later than June 30, 1937, as his standard period.

For any such business as above, the standard profits will be adjusted according to the capital employed currently and that employed in the standard period. Where there is more capital the standard profits will be increased by 8 per cent. or 10 per cent. of the additional capital, and where less capital is currently employed, the standard profits will be decreased by 6 per cent. of the difference in the capital amounts; the 8 per cent. applies to companies, the 10 per cent. to other concerns, the 6 per cent. to all concerns.

Although the above rules are statutory, a taxpayer who considers that for these to apply in his case would not be fair can apply to the Board of Referees for a review of his case. Then, if he satisfies the Board that the profits or volume of business in the standard period was less than might have been reasonably expected, the Board can schedule a greater amount as the standard profits than would apply under the ordinary rules. But, if the applicant is a company, the amount cannot ordinarily be more than an amount that would provide dividends of 6 per cent. per annum on the paid up ordinary share capital, and as respects any other paid up share capital of the company the fixed rate is payable, that is unless there is some specific reason shown—peculiar to the trade—which warrants a greater amount being allowed.

As regards a more recently established business (i.e., one begun after July 1, 1936) the standard profits will be reckoned according to the capital currently employed, being 8 per cent. if the concern is a company and 10 per cent. as regards other concerns, including companies director-controlled.

It may be that a standard period (e.g., year ending December 31) does not for the full period run with a firm's accounting period (e.g., year ending September 30); in such cases the profits will be computed for the parts of the year which synchronise, and for any months or fractions of a month which do not, an apportionment by division and aggregation of the profits will be made to arrive at the amounts to apply.

If a firm so elects, the standard profits, instead of being computed as above, can be scheduled as £1,000, which really means that a firm with war-time profits under that amount a year (assessed profits) is not within the scope of the new tax.

If the concern is a partnership or a director-controlled company, the amount can be anything up to £3,000, £750 being reckoned for each working proprietor, meaning a partner or a director as above (owning at least one-fifth of the share capital) who has, in the relevant accounting period, worked full time in the actual management or conduct of the business.

Some Special Points

The provisions explained above apply where profits are in excess of pre-war profits, and a reader may well conjecture what is the position if current profits are less than the standard profits or if there is a loss. In such cases a "deficiency" is scheduled, this being the difference between the current profits and standard profits where the first named are less than the last named and if there is a loss, the loss amount added to the standard profits. The "deficiency" amount will apply for an adjustment by repayment (or otherwise) of the tax paid. Briefly the final result will be that the total amount of Excess Profits Tax which will be paid by any firm while the tax is in operation will be the tax chargeable on the net excess profit made during the whole of the period of the tax.

Excess Profits Tax can be deducted from Income Tax assessments as a trading expense, but U.K. Income Tax and National Defence Contribution payments cannot be deducted from Excess Profits Tax assessments, although Dominion Income tax is a deductible item. Wear and tear allowances for machinery and plant are deductible for the purpose of the new tax, but Schedule A Income Tax payments (property tax) are not deductible against the Excess Profits Tax.

In beneficial contrast to the last, payments for loan interest (Debenture Interest included), annuities, other annual payments and royalties which are not deductible under Schedule D are allowable deductions for the purpose of E.P.T. assessments. Another contrast is that investment income of ordinary traders is not chargeable with Excess Profits Tax (investment income of special concerns—e.g. bankers—is, however, chargeable), although in certain circumstances, if the taxpayer makes a deduction for loan interest, the deduction is adjusted by setting against the amount of the borrowed money the value of the investment.

It might be usefully noted that a special allowance will be finally obtainable, in connection with any exceptional depreciation of buildings, machinery or plant provided (since January 1, 1937) for the purposes of the war, which with the ending of the war may have depreciated in value by becoming redundant or through other conditions consequent upon the war. A final point of importance is that Excess Profits Tax (60 per cent. on the growth of profits) and National Defence Contribution (4 or 5 per cent. on the totality of profits) are not both payable; one is alternative to the other; that is a firm will pay under that scheme which—in relation to the firm's profits—will return the higher amount.

NEW OIL PURIFICATION METHOD

In a note to the Academy of Sciences, Paris, Mr. Douchan Avsec reports the discovery of a new principle which can be used for the purification of oils containing solid matter in suspension. He came upon the method while studying the formation of electroconvective whorls in oil. In applying a pointed electrode above a layer of oil, Avsec noticed that the impurities were driven away from the point of the electrode, to leave a layer of purified oil in the centre, while the suspended solids collected near the edges of the film. Continuing this test, he noticed that this effect could be overcome by interposing an insulating screen between the electrode and a metal plate at the bottom of the oil, connected to earth. By moving this screen over the surface of the oil, he was able to obtain a layer of suspended solids on the surface of a container of oil, the remainder of the oil underneath being relieved of its impurities which collected in this surface layer and could then be easily removed.

New Control Orders

Aluminium

AT the request of the Ministry of Supply the Board of Trade have issued an Order, the Import of Goods (Prohibition) (No. 3) Order, 1940, prohibiting, except under licence, the importation of the following goods: Aluminium and alloys thereof containing more than 50 per cent. by weight of aluminium (whether coated or plated or not) other than machinery parts, in the form of ingots, notch bars, lumps, cakes, sticks, billets, slabs, wire-bars, plates, sheets, strip, circles, discs, flat stampings, bars and rods, angles, shapes and sections, tubes, wire, cable, foil (whether backed with other material or not), flakes, granules, scrap and old metal; aluminium and aluminium alloy waste or dross.

The Order came into operation on February 1, but goods covered by the Order which are proved to the satisfaction of the Customs authorities to have been dispatched to the United Kingdom before the Order came into force will not require a licence.

The object of the Order is to assist in regulating the supply of aluminium alloys and aluminium scrap in the forms listed above so that the needs of the Services are satisfied, the export trade is maintained as far as possible and metal is available to produce certain essential goods for home industries, while limiting for exchange reasons the import of aluminium in these forms for non-essential purposes. While the granting of licences will depend on the circumstances of each case, and the conditions ruling at the time, applications to import such materials for the manufacture of goods for export will generally be allowed.

As no licences will be issued for the import of foil, which is defined as sheet, strip, etc., not exceeding .006 inches in thickness applications for licences to import sheet and strip should accordingly specify thickness.

It is pointed out that aluminium powder has already been prohibited to be imported except under licence by the Import of Goods (Prohibition) (Consolidation) Order, 1939, and it is consequently not included in the Schedule to the present Order. Application for licences to import aluminium powder should in the future, however, be made in accordance with the conditions ruling at the time, as for the other aluminium products now covered, to the Aluminium Controller, Raven Hotel, Shrewsbury, Salop.

Maximum Iron and Steel Prices

The Minister of Supply has made the Control of Iron and Steel (No. 6) Order, which came into force on February 1. This supersedes the Control of Iron and Steel (No. 4) Order, made on November 1, 1939. In substance the Order is unaltered, but attention is drawn to the narrowing of the scope of the provisions for exemption from licence contained in Direction (No. 1), attached to the Order and to the price alterations.

The maximum prices fixed under the Order represent an addition of 3s. a ton in the case of pig-iron and £1 a ton in the case of semi-finished and heavy steel products, with corresponding adjustments in the prices of other finished products. These additions, as in the case of the additions made as from November 1, are for the purpose of meeting from a central fund the additional costs, including higher freight charges, which arise from importations of raw and semi-finished materials under war conditions. There are also some further adjustments in the prices of tinplate and iron castings.

Mercury and Mercurial Compounds

In consequence of advances in the price of mercury, the maximum prices of certain mercury compounds have been revised by the Ministry of Supply under the Control of Mercury (No. 3) Order, 1940, which came into force on January 29. Copies of the new Orders may be purchased from H.M. Stationery Office, or through any bookseller. Inquiries should be addressed to the Ministry of Supply (Code HA), Raw Materials Department (Mercury Control), Shell-Mex House, Strand, London, W.C.2.

Control of Molasses

Direction No. 2 under the Control of Molasses and Industrial Alcohol (No. 2) Order revokes the earlier Direction regulating the disposal of mineralised methylated spirit. Under the new Direction a producer of mineralised methylated spirit may until further notice, without a licence, dispose of such spirit in a quantity not exceeding in any period of six months the quantity which was disposed of by him during the period of six months ending August 31, 1939.

Exports to Eire

The Board of Trade have made an Order under which exports of superphosphate of lime and phosphate rock to Eire became subject to export licence from February 1. Applications for licences should be made to the Export Licensing Department, Inveresk House, 346 Strand, W.C.2.

Chemical Matters in Parliament

Release of Scientific Workers

IN the House of Commons on Tuesday, Captain Plugge asked the Minister of Labour whether he was aware of the difficulties of firms such as Messrs. John Moncrieff, Ltd., the Worcester Royal Porcelain Company, and other firms producing scientific glass products, in obtaining an adequate number of highly-skilled workers essential for their activities; and whether he could give an assurance that he would do everything possible to assist these firms in obtaining the release from the Fighting Services of the workers they require.

Mr. E. Brown replied that he was aware of the urgent demand for qualified workers of the kinds described. The question of the release of such men from the Fighting Services was one for consideration by the Service Departments in the light of any representations that may be made to them by the Department which is interested in the products of the firm making the application.

Captain Plugge asked the Secretary of State for War whether he was aware that the Glass Manufacturers' Federation was recently informed by the War Office that no more men could be released from the Army to undertake vital skilled work in factories producing scientific instruments, glassware and other products essential to many branches of British industry; and whether, in view of the fact that the position is still far from satisfactory, he would arrange for the matter to be reviewed at the earliest opportunity?

Mr. Stanley said that there had been considerable correspondence between the War Office and the Glass Manufacturers' Federation, in the course of which they had been informed that, apart from the scheme under which certain men in special categories of civil employment have been and are being released from the Territorial Army, releases from the Army to any branch of industry could be considered only on the recommendation of the appropriate Government Department. Certain releases had been approved, and further releases could not be granted unless the circumstances were very exceptional.

Temporary Appointment of Chemists

Sir E. Graham-Little asked the Financial Secretary to the Treasury whether he was aware that scientific personnel is being recruited for temporary employment in Government Departments at the present time at salary scales below the normal recommended in the Carpenter Report, and that some chemists, with several years' research experience, were recently appointed to the Government laboratory at salaries between £200 and £218 per annum, whereas the recommended salary for equivalent posts in the Carpenter Report is £275; and whether he was prepared to see that such temporary staff should receive salaries commensurate with the normal scale?

Captain Crookshank replied that he understood that a few chemists had been engaged by the Government Chemist on a temporary basis at a salary of £218 per annum during a probationary period. Their duties did not, however, correspond in range and responsibility with those appropriate to the Carpenter grade of chemists, whose normal commencing salary is £275 per annum.

PERSONAL NOTES

PROFESSOR CZESLAV BIAŁOBRZESKI, the Polish physicist, who was reported to have been condemned to death and shot by the Germans in Warsaw, is still alive. News of his safety was received in London recently, according to *The Times*.

* * * *

MR. NORMAN SHELDON, A.R.C.S., A.I.C., was elected chairman of the Chemical Ware Manufacturers' Association, at the recent annual meeting of the Association, in succession to the late Mr. Douglas Baird, chairman of Baird and Tatlock (London), Ltd.

* * * *

MR. R. P. CARTWRIGHT, B.Sc., at the request of the council of the Institute of Plastics Industry, has agreed to remain as chairman for the 1939-40 session. MR. W. OWEN-GRIFFITHS, A.M.I.Mech.E., has accepted nomination as vice-president for the coming year, succeeding MR. P. A. DELAFIELD, who is on active service.

* * * *

The Gordon Wigan Prize in Chemistry of the University of Cambridge is divided equally between J. CHATT, B.A., of Emmanuel College, and F. WILD, B.A., of Downing College. Mr. Chatt was educated at Wigton School, Cumberland, and Mr. Wild at Queen Elizabeth's School, Blackburn. The value of the prize is £30.

* * * *

We are glad to report that SUB-LIEUT. G. WARDLE, who was reported as missing by the Admiralty, has, according to the German radio, been rescued. He was aboard the submarine *Starfish*. Sub-Lieut. Wardle is a son of Mr. G. C. Wardle, who is chairman of Joshua Wardle, Ltd., and a principal of Wardle and Davenport, Ltd., Leek, Staffordshire.

OBITUARY

COUNCILLOR GORDON COCHRANE, J.P., of Messrs. McCreadie, Cochrane and Co., iron and steel merchants, Hope Street, Glasgow, died last week in Glasgow at the age of 45.

* * * *

MAJOR OLIVER APPLEYARD, who carried on business as a grease manufacturer in Pudsey, died on January 23 at York Military Hospital after a short illness.

* * * *

MR. DONALD MACNEIL, who died recently at Cardonald, was managing director of Ivie Hair and Co., drysalters and soap makers, Glasgow, and had been associated with the firm for over 60 years.

* * * *

MR. WILLIAM HUGH SMITH, who retired two years ago from the position of manager of the Hyndeshaw fireclay pit, and was for many years lecturer on mining at the Wishaw Technical School, died recently at Wishaw.

* * * *

The death has taken place at Saltburn, Yorkshire, of DR. JOHN A. ROELOFSEN, general manager of Messrs. Dorman Long and Co.'s by-product and distillation plant at Port Clarence. He was a vice-president of the British Road Tar Association, past president of the Association of Tar Distillers, and chairman of the Creosote Producers' Association.

* * * *

DR. T. W. DRINKWATER, for nearly 61 years a lecturer in the School of Medicine of the Royal College of Physicians and Surgeons, died last week, aged 87. In 1870 Dr. Drinkwater took up the study of medicine at St. Thomas's Hospital, London. After carrying on his studies in Germany he went to Edinburgh as assistant to Sir Henry Littlejohn (then Dr. Littlejohn), Professor of Medical Jurisprudence. For a time he engaged in practical chemistry in Leith Chemical Works. For 22 years he was a teacher of chemistry in the Royal High School, Edinburgh. He was public analyst to various burghs in Scotland and examiner in chemistry to the Royal Agricultural Society of London.

MR. B. D. PORRITT, Director of Research, Research Association of Rubber Manufacturers, died at Croydon on Sunday at the age of 56. Mr. Porritt was M.Sc. (London), F.I.C., F.Inst.P., F.I.R.I., F.R.S.E. In 1908 he was appointed chemist to the North British Rubber Company, Ltd., Edinburgh; in 1910 he became works superintendent, in 1912 chief chemist, and in 1916 research superintendent. Mr. Porritt was a member of the Council of the Institute of Chemistry from 1920 to 1922 and from 1924 to 1926; a member of the Council of the Chemical Society from 1925 to 1927; and a member of the Council of the Institution of the Rubber Industry from 1922 to 1935, being also vice-president from 1936 to 1939 and chairman of the Examinations Board during the same period. In 1938 he was Colwyn Medallist.

Laboratory Glassware

Continuance of British Enterprise

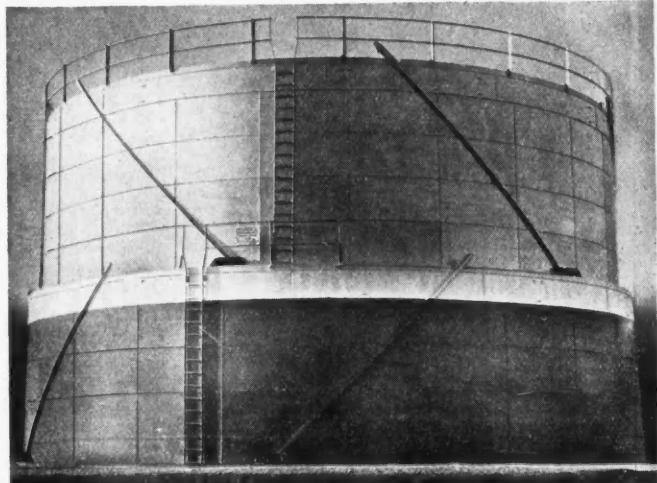
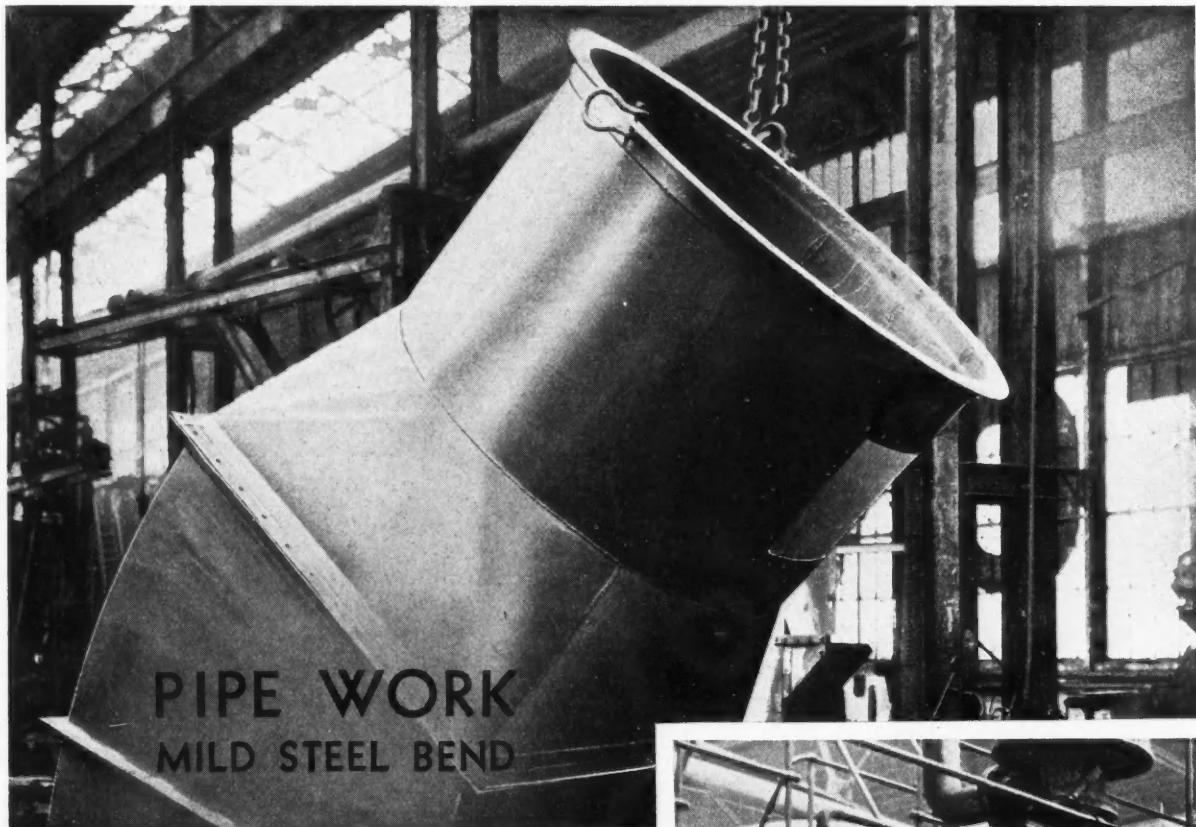
IT is well known that the difficulty of obtaining an adequate supply of laboratory glassware was for many years a great stumbling block to the advance of the British chemical industry. At the beginning of the last war chemists found that their supply of this essential commodity was practically cut off, by far the greater quantity of chemical glassware having been imported from enemy countries. During that war and in the years immediately after, British commercial enterprise built up the trade, eventually under the protection of the Safeguarding of Industries Act; but even under these conditions foreign manufacturers re-entered the field at prices with which we could not compete, and many British makers of glassware retired from the field, or at any rate greatly reduced the range of their products.

This being the case, it is particularly encouraging to be able to record the continued enterprise of Messrs. J. W. Towers and Co., Ltd., of Widnes, in this essential field. Their latest catalogue of graduated glassware, which we have just received, shows a very wide and varied range of burettes, pipettes, measuring cylinders, receivers, and flasks for general and special purposes. Among special apparatus of recent design are the accurate titration burettes, and the Nessler cylinders with fused-on bases which give perfect vision—the latter a form of apparatus which has not hitherto been made in this country. The Towers glassware is supplied in four qualities: (1) Class A, N.P.L., of highest accuracy, verified and stamped by the National Physical Laboratory as complying with the Class A Specification, supplied either with or without certificate which states whether any correction is required; (2) Class B, N.P.L., of high commercial accuracy, certified and stamped by the N.P.L. as conforming with the Class B Specification. Certificates are not supplied by the N.P.L. for this quality; (3) A Quality, guaranteed to conform to the N.P.L. Class A standard of accuracy, but not verified and stamped by the N.P.L.; and (4) B Quality, guaranteed to conform to the N.P.L. Class B standard of accuracy, but not verified and stamped by the N.P.L.

THE CHEMICAL CLUB

The next informal luncheon talk of the Club will be given by Mr. J. P. Taylor, Editor of "Shipbuilding and Shipping Record," on Monday, February 12, at 2 o'clock in the Club at No. 2 Whitehall Court, S.W.1 (luncheon at 1 o'clock). He has coined a word for his title, which is "The Need for the Doublyouipbeer." Having been Editor of a technical journal for some twenty-six years he has much to say concerning authors, would-be authors, publicists and readers. The previous talk of the series by Mr. J. Kewley on "The Intrusions of Petroleum" was very well attended and provoked a particularly interesting discussion; an "overflow" lunch table had to be provided in another part of the building.

CLAYTON, SON & Co. Ltd. Hunslet, LEEDS



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Inventions in the Chemical Industry

The following information is prepared from the Official Patents Journal. Printed copies of Specifications accepted may be obtained from the Patent Office, 25 Southampton Buildings, London, W.C.2, at 1s. each. The numbers given under "Applications for Patents" are for reference in all correspondence up to the acceptance of the Complete Specification.

Applications for Patents

BURNERS FOR GASEOUS FUELS.—Anglo-Saxon Petroleum Co., Ltd., and R. Rigby. 808.

MANUFACTURE OF HETEROCYCLIC COMPOUNDS.—A. W. Baldwin, M. A. T. Rogers, and Imperial Chemical Industries, Ltd. 747.

PROCESS FOR THE PRODUCTION OF METHYL ALCOHOL.—Celec Corporation, Ltd., and C. S. Townsend. 715.

OIL-STRAINING FILTER.—Celec Corporation, Ltd., and C. S. Townsend. 716.

PRODUCTION OF GLYCOLIC ACID DERIVATIVES and related compounds.—E. I. du Pont de Nemours and Co. (United States, Jan. 11, '39.) 662.

MANUFACTURE OF ORGANIC SULPHONIC ACIDS.—E. I. du Pont de Nemours and Co., and M. W. Farlow. 895.

PRODUCTION OF DYESTUFF INTERMEDIATES.—Gevaert Photo-Products N.V., and W. Mees. 741.

PLASTICISERS.—E. Higgins. (United States, Jan. 21, '39.) 665.

PROCESS OF MANUFACTURING VARNISH.—J. Jones. 703.

MANUFACTURE OF HYDROCARBON GASES.—T. D. Kelly. (Sept. 13, '39.) 1039.

FUNGICIDES AND ROT-PROOFING MATERIALS and articles treated with same.—A. King. 1001.

MANUFACTURE OF TOLUENE.—E. M. Meade. 817.

METHOD OF RECOVERING CALCUM LACTATE and lactic acid from fermented mashes.—J. Müller. (United States, Jan. 20, '39.) 875.

LIGHT-SENSITIVE DIAZO COMPOUNDS.—H. D. Murray. 597, 598.

JETS FOR BURNING GASEOUS FUEL.—T. F. C. Potterton, and A. B. Potterton. 958.

MANUFACTURE OF THIONYL CHLORIDE.—H. R. C. Pratt, and Imperial Chemical Industries, Ltd. 972.

PROCESS FOR THE PRODUCTION OF PLASTICISED SYNTHETIC RESINS.—L. Renault. (France, Feb. 22, '39.) 1030.

MANUFACTURE OF SATURATED HYDROCARBONS BY ALKYLATION.—Standard Oil Development Co. (United States, Feb. 27, '39.) 722; (United States April 13, '39.) 723.

HALOGENATED POLYMERS OF ETHYLENE.—D. Whittaker, and Imperial Chemical Industries, Ltd. 970, 971.

PROCESS FOR EXTRACTING CELLULOSE from peat turf or other vegetable matter.—J. Winning, and A. Gorzelanczyk. 1067.

Complete Specifications Open to Public Inspection

PREPARATION OF HYDROGEN PEROXIDE.—H. Schmidt. June 4, 1938. 16495/39.

MANUFACTURE OF AZO DYESTUFFS.—Imperial Chemical Industries, Ltd. June 4, 1938. 16507-8/39.

MANUFACTURE OF ARTIFICIAL THREADS.—I. G. Farbenindustrie. June 7, 1938. 16578/39.

MANUFACTURE OF CELLULOSE DERIVATIVES.—British Celanese, Ltd. June 7, 1938. 16611/39.

SYNTHETIC RESINOUS COMPOSITIONS, and methods of making same.—British Thomson-Houston Co., Ltd. June 8, 1938. 16613/39.

MOULDING THERMO-SETTING PLASTIC MATERIAL, particularly for rubber printing-plates.—Bakelite, Ltd. June 17, 1938. 36748/38.

PROCESS FOR THE SOLVENT TREATMENT OF MINERAL OIL.—Standard Oil Development Co. June 15, 1938. 9165/39.

DYESTUFF, and method of making same.—M. Factor and Co. June 15, 1938. 10533/39.

SOLVENTS for polymerised synthetic substances.—Byk-Guldenwerke Chemische Fabrik, A.-G. June 14, 1938. 13465/39.

CONVERSION OF HEAVY LIQUID FUEL into combustible gas.—Eastern Oil Refining Co., Inc. June 9, 1938. 13830/39.

PROCESS FOR THE CATALYTIC POLYMERISATION of normally gaseous olefines.—Universal Oil Products Co. June 15, 1938. 14964/39.

MAGNESIUM CARBONATE COMPOSITION, and process for the preparation thereof.—Plant Rubber and Asbestos Works. June 9, 1938. 15210/39.

ALKYLATION OF HYDROCARBONS.—Texaco Development Corporation. June 18, 1938. 15413/39.

PROCESS FOR SPLITTING-UP MIXTURES of chemically-related organic substances.—N.V. de Bataafsche Petroleum Maatschappij. June 10, 1938. 15458/39.

MANUFACTURE OF 1-METHYL-4-CHLORO-5-HYDROXYNAPHTHALENE 1'-SULPHONIC ACID.—I. G. Farbenindustrie. June 11, 1938. 16263/39.

METHOD FOR PRODUCTION OF VITAMIN E and its isomers.—Pharma Ges. June 18, 1938. 16390/39.

PROCESS OF AND APPARATUS FOR THE PRODUCTION OF TUBULAR HOLLOW BODIES from synthetic resin plastics.—Stotz-Kontakt Ges. June 14, 1938. 16499/39.

PRODUCTION OF PREPARATIONS having gonadotropic activity.—Soc. of Chemical Industry in Basle. June 10, 1938. (Cognate Application, 16690/39.) 16689/39.

METHOD OF PRODUCING CONCENTRATED RUBBER LATEX.—Aktiebolaget Separator. June 10, 1938. (Cognate Application, 16712/39.) 16711/39.

MANUFACTURE OF AZO DYESTUFFS.—I. G. Farbenindustrie. June 9, 1938. 16742/39.

SEPARATION AND RECOVERY OF SOLVENTS and hydrocarbons from gaseous mixtures.—Soc. des Etablissements Barbet. June 11, 1938. 16990/39.

AZO DYESTUFFS, their manufacture and applications.—E. I. du Pont de Nemours and Co. June 11, 1938. 17196/39.

MANUFACTURE OF AZO DYESTUFFS.—E. I. du Pont de Nemours and Co. June 11, 1938. 17206/39.

VARNISHES.—British Thomson-Houston Co., Ltd. June 15, 1938. 17299/39.

NON-CAPILLARY SILK SUTURE, and method of preparing the same.—American Cyanamid Co. June 16, 1938. 17319/39.

PRODUCTION OF TITANIUM PIGMENTS.—E. I. du Pont de Nemours and Co. June 15, 1938. 17323/39.

FLUORESCENT MATERIALS.—British Thomson-Houston Co., Ltd. June 17, 1938. 17409/39.

Precipitation of cellulose triacetate.—Kodak, Ltd. June 16, 1938. 17467/39.

MANUFACTURE OF BENZANTHRONES.—I. G. Farbenindustrie. June 18, 1938. 17498/39.

PROCESS FOR THE PRODUCTION OF HALOGEN SUBSTITUTED ACYL AMINO SULPHONIC ACIDS, and the resulting products.—J. R. Geigy, A.-G. June 16, 1938. (Cognate Application, 17506/39.) 17505/39.

PROCESS FOR THE PREPARATION OF AMALGAMS.—Allgemeine Treuhand, A.-G. June 15, 1938. 17509/39.

Specifications Accepted with Date of Application

METHOD OF AND MEANS FOR COOLING and washing oil.—A. S. Lee, and Superheater Co., Ltd. July 7, 1938. 516,866.

TREATMENT OF SULPHITES.—Board of Trustees of University of Illinois. June 14, 1937. 516,767.

PRODUCTION OF CELLULOSE DERIVATIVES.—E. I. du Pont de Nemours and Co. Aug. 30, 1937. 516,672.

ACETYLENE GENERATOR.—I. G. Farbenindustrie. July 2, 1937. 516,681.

DESULPHURISING IRON or iron alloys.—Sachtleben, A.-G., fur Bergbau und Chemische Industrie. Oct. 29, 1937. 516,684.

CATALYTIC POLYMERISATION OF ACETYLENE.—E. I. du Pont de Nemours and Co. July 2, 1937. 516,688.

PRODUCTION OF AZO DYESTUFFS ON THE FIBRE, and compositions therefor.—Imperial Chemical Industries, Ltd. July 2, 1937. 516,689; July 3, 1937. 516,690.

ACETYLATION OF ARTIFICIAL FIBRES.—Soc. des Usines Chimiques Rhone-Poulenc, A. F. Bidaud, and P. J. Chevalier. July 5, 1938. 516,698.

CONDENSER DIELECTRIC OF TITANIUM OXIDE.—Rosenthal-Isolatoren Ges. Werk Selb. July 5, 1937. 516,704.

MANUFACTURE OF GLYOXAL.—W. W. Groves (I. G. Farbenindustrie.) July 6, 1938. 516,740.

MANUFACTURE OF AZO DYESTUFFS.—I. G. Farbenindustrie. July 6, 1937. 516,773.

FUSED SALT ELECTROLYSIS CELLS.—E. I. du Pont de Nemours and Co. July 6, 1937. 516,775.

SYNTHETIC RUBBER-LIKE MATERIALS.—B. J. Habgood, R. Hill, E. Isaacs, L. B. Morgan, and Imperial Chemical Industries, Ltd. July 6, 1938. 516,776.

METHOD OF PREPARING ALKYLATED HYDROCARBONS from normal paraffinic hydrocarbons.—Texaco Development Corporation. July 24, 1937. 516,780.

METHOD OF PRODUCING ALKYL COMPOUNDS OF LEAD.—Ethy! Gasoline Corporation. Feb. 16, 1938. 516,874.

MANUFACTURE OF METHYL and ethyl lead compounds.—Ethy! Gasoline Corporation. Feb. 16, 1938. 516,875.

MANUFACTURE OF *o*-SUBSTITUTED SIDE CHAIN KETONES of the cyclopentanopolypolyhydrophenanthrene series.—Soc. of Chemical Industry in Basle. July 9, 1937. (Cognate Application, 20490/38.) 516,828.

METHOD AND APPARATUS FOR REFINING OR CLEANING OILS.—A. Schlegel. July 10, 1937. 516,831.

MANUFACTURE OF DERIVATIVES of the saturated and unsaturated cyclopentanopolypolyhydrophenanthrene series.—Soc. of Chemical Industry in Basle. July 12, 1937. (Sample furnished.) (Cognate Application, 20641/38.) 516,888.

STEROL COMPOUNDS, and processes for preparing same.—Parke, Davis and Co. Aug. 6, 1937. 516,845.

PRODUCTION OF INSOLUBLE AZO-DYESTUFFS.—Compagnie Nationale de Matieres Colorantes et Manufactures de Produits Chimiques du Nord Reunies Etablissements Kuhlmann. July 27, 1937. (Cognate Application, 22290/38.) 516,851.

APPARATUS FOR THE TREATMENT OF FLUE GASES, waste gases from industrial processes, and the like.—G. H. Dreier, and Paterson Engineering Co., Ltd. July 27, 1938. (Addition to 409,849.) 516,854.

PRODUCTION OF MAGNESIUM.—W. J. Tennant (Dow Chemical Co.). March 10, 1939. 516,758.

General News

MESSRS. MAY AND BAKER, LTD., announce an advance of 3d. per lb. in the prices of Technical Ethers.

WAGES OF POTTERY WORKERS were further increased on February 2, men receiving 4d. more per day, women 3d. and workers under twenty-one 2d.

IN THE INSTITUTE OF CHEMISTRY's January examinations Mr. Clifford Harris passed the examination for the Fellowship in branch G (industrial chemistry, with special reference to chocolate and cocoa). Twelve candidates were successful in the examination in general chemistry for the Associateship.

MESSRS. KENNEDY AND REID, oil refiners, Parkhead Oil Works, Helenvale Street, Glasgow, are retiring from business, and the firm's oil refining, resin distilling and grease manufacturing plant, storage tanks, and buildings will be sold by auction on February 6.

AN ILLUSTRATED LECTURE on "Phosphorescent Phosphors" will be given on Thursday, February 8, at 6 p.m., by Dr. Leonard Levy, M.A. (Cantab.), D.Sc. (Lond.), F.I.C., and Mr. D. W. West, A.C.G.I., A.I.C., before the meeting of the Institution of Electronics. The meeting will be held at the Royal Society of Arts, John Street, Adelphi, W.C.2.

AN ORDINARY MEETING OF THE INSTITUTION of Chemical Engineers will be held on Tuesday, February 13, 1940, in the rooms of the Geological Society, Burlington House, Piccadilly, London, W.1, at 2.15 p.m. A paper on "Sedimentation and Flocculation" will be presented by Mr. M. B. Donald, M.Sc., A.R.C.S., F.I.C. The chair will be taken by Mr. F. Heron Rogers (president).

A JOINT MEETING of the Plastics Group of the Society of Chemical Industry with the South Wales Section, the Institute of Chemistry, and the Chemical Society will be held at 7 p.m. on February 8, in the Physics and Chemistry Lecture Theatre, University College, Cathays Park, Cardiff. A paper entitled "Plastics and Coal," by N. J. L. Megson and K. W. Pepper, will be read by Dr. Pepper.

AN ORDINARY MEETING OF THE Chemical Engineering Group of the Society of Chemical Industry will be held in the rooms of the Chemical Society, Burlington House, Piccadilly, London, W.1, on Friday, February 16, 1940, at 2.30 p.m., when a paper on "The Chemical Plant Manufacturer in Relation to Chemical Industry" will be presented by Mr. Brian N. Reavell and Dr. G. E. Foxwell. The chairman of the Group, Mr. H. W. Cremer, will preside.

A START IS TO BE MADE IMMEDIATELY on the erection of a £1,000,000 factory in the North of England for High Duty Alloys, Ltd., of Redditch. The factory will cover about 350,000 square feet and include forging and stamping works, laboratories, offices and canteen. The buildings, which are expected to be ready in August, will find employment for 1,000 men. International Alloys, Ltd. (which is associated with High Duty Alloys, Ltd.), are to build a factory also to work in conjunction with the first factory and this will employ 500 people.

AS A RESULT of a conference in London on January 23 the engineering employees of Imperial Chemical Industries, Ltd. (except in its metal group), have been granted an increase of bonus on earnings of 3½ per cent., making the revised bonus 13½ per cent., and a war addition on wages of 2s. per week. The war addition is to be payable as a fixed weekly amount irrespective of hours of work and periods of absence so long as employees remain on the pay roll of the company, and is to be independent of and have no connection with the wage rates. The advances operate as from January 1.

THE SECRETARY OF THE DEPARTMENT of Overseas Trade, the Rt. Hon. R. S. Hudson, M.P., has appointed a Committee for establishing closer contact with the exporting industries; and as a channel for the investigation of difficulties and the encouragement of effort in the export trade. The Chairman of the Committee is Mr. E. Raymond Street, C.B.E., Director and Secretary of the Manchester Chamber of Commerce; the secretary is Mr. W. M. Hill, of the Department of Overseas Trade; the members represent the principal Chambers of Com-

From Week to Week

merce of Great Britain, the F.B.I., and the National Union of Manufacturers.

AN AGREEMENT HAS BEEN reached between representatives of the National Council of Associated Iron Masters and the National Union of Blast Furnacemen, whereby the temporary war bonus payment which was agreed in November last will continue to operate. In addition, an increase under the ordinary operation of the sliding scale is to operate on the wages of all blastfurnacemen in the country. In the Cleveland district this increase will be from February 4, and the sliding scale percentage will then rise from 46½ per cent. to 53½ per cent., and will be in force for three months. As the agreement is of a national character comparable scale advances will occur in all districts. It is expected that the wage basis will come up for review at a joint conference to be held in April, as it is hoped to regularise wages under war-time conditions.

INTIMATION WAS MADE to Lord Stevenson in the Court of Session, Edinburgh, on January 25, of the settlement of two actions brought against William Forrest and Son (Paisley), Ltd., chemical manufacturers, Chain Road, Paisley, arising out of an accident which occurred in the defenders' works on January 12, 1939. In the first action Mrs. Elizabeth Robertson or Potts, widow, sued on her own behalf and on behalf of her three children for a total of £3,800 as damages in respect of the death of David Potts, the husband and father. Pursuer stated that while her husband was cleaning a boiler, escaping steam invaded the water drum and caused scalding injuries, from which he died. In terms of the settlement defenders have agreed to pay £1,000 to the pursuer, and £685 between her three sons, and expenses. The second action was brought by David Cameron Cumming, engineer's assistant, for payment of £2,000. He stated that he was working with Potts when he was severely scalded on the face, head and neck, arms and legs. He has accepted £800 and expenses in settlement of his claim.

Foreign News

PLANS FOR DEVELOPING the tremendous iron deposits in Minas Geraes, Brazil, and establishing a modern steel mill are again to the fore.

SYNTHETIC METHANOL PRODUCTION in the United States increased by 57 per cent. in October, 1939, compared with the September output. For the first ten months of 1939 the output was 25,459,513 gallons as against 20,568,941 gallons in the corresponding period of 1938. Production of crude methanol in the first 10 months of 1939 was slightly higher than in the corresponding period of 1938, amounting in the 1939 period to 3,745,946 gallons as against 3,468,519 gallons.

THE EXPERIMENTS made in Sweden with Government aid to produce raw phosphate from the apatite-iron ore body at Malmberget have been completed. It is said that satisfactory results have been obtained and a building for the production of concentrated apatite is being erected at Malmberget. The possibility of producing finished fertilisers at this plant has been considered, but whether the Swedish phosphate will be able to compete with imported phosphate rock under normal conditions has not as yet been ascertained.

IT IS ANNOUNCED FROM COPENHAGEN that the Dansk Søvlysyre and Superfosfat Fabrik is now making aluminium hydroxide in the form of a stable emulsion to act as a carrier for the important new vaccine recently developed by the State Serum Institute against foot-and-mouth disease. Hitherto aluminium hydroxide emulsion has been produced by only one company in Germany. The output of the Danish company is already sufficient to cover Denmark's needs and possibly provide a small surplus for export.

ACCORDING TO "World Trade Notes" of the U.S. Dept. of Commerce, information concerning the movement of ammonium sulphate and other commodities for the U.S.S.R. is available relating to cargoes from Black Sea ports passing Istanbul. Cargo records for the first 9 months of 1939 disclose shipments of 11,749 tons of ammonium sulphate, 2,179 tons of "saltpetre," 172 tons of sodium sulphate and 4,000 tons "phosphate."

Weekly Prices of British Chemical Products

THE volume of business transacted during the past week has again been quite satisfactory although there are no outstanding features which call for particular comment. In some directions the supply position remains rather difficult and deliveries, therefore, are dependent upon limited available stocks and, on the whole, can only cover small quantities. Yellow prussiate of potash and chlorate of potash are scarce and quotations for these two items are very firm. As a result of the higher prices ruling for mercury the controlled prices for certain mercurial compounds have been substantially advanced; the increase came into operation on January 29. Elsewhere there have been no important changes in values to record, prices generally remaining steady to firm. In the market for coal tar products there is little of fresh interest to record, the general movement being about the average for the period. Available supplies of carbolic acid crystals are reported to be insufficient to meet the present demand.

MANCHESTER.—Prices generally have been on a steady to firm basis on the Manchester chemical market during the past week, with fresh business on a moderately active scale. The potash products and many other imported materials continue to be offered in restricted quantities for prompt delivery and at high prices. The demand for deliveries of the leading heavy chemicals against contracts is active in most instances, but transport

difficulties have seriously interfered with deliveries this week. This also applies to the by-products trade, in which fresh inquiry in a number of sections is less in evidence at the moment.

GLASGOW.—A certain amount of restriction is being experienced in almost all controlled materials at the present time and business has accordingly been hampered during the past week. Prices for home and export remain high and always tending to increase.

Price Changes

Rises: Charcoal, Citric Acid, Cream of Tartar, Mercury Products, Pyridine, Sodium Hyposulphite, commercial (Manchester), Tartaric Acid.

Falls: Carbolic Acid Crystals.

* In the case of certain products, here marked with an asterisk, the market is nominal, and the last ascertainable prices have been included.

General Chemicals

ACETIC ACID.—Maximum prices per ton: 80% technical, 1 ton, £34 15s.; 10 cwt./1 ton, £35 15s.; 4/10 cwt., £36 15s.; 80% pure, 1 ton, £36 15s.; 10 cwt./1 ton, £37 15s.; 4/10 cwt., £38 15s.; commercial glacial, 1 ton, £44; 10 cwt./1 ton, £45; 4/10 cwt., £46; delivered buyers' premises in returnable barrels, £4 per ton extra if packed and delivered in glass.

ACETONE.—Maximum prices per ton, 50 tons and over, £49 10s.; 10/50 tons, £50; 5/10 tons, £50 10s.; 1/5 tons, £51; single drums, £52, delivered buyers' premises in returnable drums or other containers having a capacity of not less than 45 gallons each; delivered in containers of less than 45 gallons but not less than 10 gallons £10 10s. per ton in excess of maximum prices; delivered in containers less than 10 gallons each £10 10s. per ton in excess of maximum prices, plus a reasonable allowance.

***ALUM.**—Loose lump, £8 7s. 6d. per ton d/d.

***ALUMINIUM SULPHATE.**—£7 5s. 0d. per ton d/d Lancs.

AMMONIA, ANHYDROUS.—99.95%, 1s. to 2s. per lb. according to quantity in loaned cylinders, carriage paid; less for import contracts.

AMMONIUM CARBONATE.—£20 per ton d/d in 5 cwt. casks.

AMMONIUM CHLORIDE.—Grey galvanising, £18 per ton, in casks, ex wharf. See also Salammoniac.

***ANTIMONY OXIDE.**—£68 per ton.

ARSENIC.—99/100%, about £25 per ton, ex store

BARIUM CHLORIDE.—98/100%, prime white crystals, £11 10s. 0d. to £13 0s. 0d. per ton when available, bag packing, ex works; imported material would be dearer.

BLEACHING POWDER.—Spot, 35/37% £9 5s. per ton in casks, special terms for contract.

BORAX, COMMERCIAL.—Granulated, £20 10s. per ton; crystal, £21 10s.; powdered, £22; extra finely powdered, £23; B.P. crystals, £29 10s.; powdered, £30; extra fine, £31 per ton for ton lots in free 1-cwt. bags, carriage paid in Great Britain. Borax Glass, lump, £64; powder, £65; in tin-lined cases for home trade only, packages free, carriage paid in Great Britain.

BORIC ACID.—Commercial granulated, £34 10s. per ton; crystal, £35 10s.; powdered, £36 10s.; extra finely powdered, £38 10s.; large flakes, £47; B.P. crystals, £43 10s.; powdered, £44 10s.; extra fine powdered, £46 10s. per ton for ton lots, in free 1-cwt. bags, carriage paid in Great Britain.

CALCIUM BISULPHITE.—£7 10s. per ton f.o.r. London.

***CALCIUM CHLORIDE.**—GLASGOW: 70/75% solid, £5 12s. 6d. per ton ex store.

CHARCOAL LUMP.—£10 to £12 per ton, ex wharf. Granulated £11 to £14 per ton according to grade and locality.

***CHLORINE, LIQUID.**—£18 15s. per ton, seller's tank wagons, carriage paid to buyer's sidings; £19 5s. per ton, d/d in 16/17 cwt. drums (3-drum lots); £19 10s. per ton d/d in 10-cwt. drums (4-drum lots); 4s. d. per lb. d/d station in single 70-lb. cylinders.

CHROMETAN.—Crystals, 3s. d. per lb.; liquor, £19 10s. per ton d/d station in drums.

CHROMIC ACID.—10s. d. per lb., less 2%; d/d U.K.

CHROMIC OXIDE.—1s. 1d. per lb., d/d U.K.

CITRIC ACID.—1s. 2d. per lb. MANCHESTER: 1s. 3d.

***COPPER SULPHATE.**—Nominal.

CREAM OF TARTAR.—100%, £6 2s. to £6 7s. per cwt., less 2%. Makers' prices nominal, imported material about £170 per ton.

FORMALDEHYDE.—40% by volume, £23 5s. to £25 per ton, according to quantity, d/d in sellers' returnable casks.

FORMIC ACID.—85%, £44 10s. per ton for ton lots, carr. paid, carboys returnable; smaller parcels quoted at 46s. 6d. to 49s. 6d. per cwt., ex store.

GLYCERINE.—Chemically pure, double distilled, 1,260 s.g., in tins, £3 10s. to £4 10s. per cwt. according to quantity; in drums, £3 2s. 6d. to £3 16s. 0d. Refined pale straw industrial, 5s. per cwt. less than chemically pure.

HEXAMINE.—Technical grade for commercial purposes, 1s. 4d. per lb.; free-running crystals are quoted at 1s. 7d. per lb.; carriage paid for bulk lots.

HYDROCHLORIC ACID.—Spot, 5s. 6d. to 8s. carboy d/d according to purity, strength and locality.

IODINE.—Resublimed B.P., 9s. 2d. to 13s. per lb., according to quantity.

LACTIC ACID.—(Not less than ton lots). Dark tech., 50% by vol., £30 10s. per ton; 50% by weight, £35; 80% by weight, £60; pale tech., 50% by vol., £36; 50% by weight, £42; 80% by weight, £67. One ton lots ex works; barrels returnable.

LEAD ACETATE.—White, £48 to £50, ton lots.

LEAD NITRATE.—About £40 per ton in casks.

LEAD, RED.—English, 5/10 cwt., £41 10s.; 10 cwt. to 1 ton, £41 5s.; 1/2 tons, £41; 2/5 tons, £40 10s.; 5/20 tons, £40; 20/100 tons, £39 10s.; over 100 tons, £39 per ton, less 2½ per cent., carriage paid; non-setting red lead, 10s. per ton dearer in each case; Continental material, £1 per ton cheaper.

LEAD, WHITE.—Dry English, less than 5 tons, £51; 5/15 tons, £47; 15/25 tons, £46 10s.; 25/50 tons, £46; 50/200 tons, £45 10s. per ton, less 5% carriage paid; Continental material, £1 per ton cheaper. Ground in oil, English, 1/5 cwt., £59; 5/10 cwt., £58; 10 cwt. to 1 ton, £57 10s.; 1/2 tons, £56; 2/5 tons, £55; 5/10 tons, £53; 10/15 tons, £52; 15/25 tons, £51 10s.; 25/50 tons, £51; 50/100 tons, £50 10s. per ton, less 5% carriage paid. Continental material £2 per ton cheaper.

LITHARGE.—10 cwt.-1 ton, £34 15s. per ton.

MAGNESITE.—Calcedine, in bags, ex works, about £9 to £10 per ton.

MAGNESIUM CHLORIDE.—Solid (ex wharf), £10 per ton.

***MAGNESIUM SULPHATE.**—Commercial, £5 10s. per ton, ex wharf

MERCURY PRODUCTS.—Controlled prices for 1 cwt. quantities:

Bichloride powder, 9s. 1d.; bichloride lump, 9s. 8d.; bichloride ammon. powder, 10s. 7d.; bichloride ammon. lump, 10s. 5d.; mercurous chloride, 10s. 11d.; mercury oxide, red cryst., B.P., 12s. 3d.; red levig. B.P., 11s. 9d.; yellow levig. B.P., 11s. 7d.

***METHYLATED SPIRIT.**—61 O.P. industrial, 1s. 5d. to 2s. per gal.; pyridinised industrial, 1s. 7d. to 2s. 2d.; mineralised, 2s. 6d. to 3s. Spirit 64 O.P. is 1d. more in all cases and the range of prices is according to quantities.

***NITRIC ACID.**—Spot, £25 to £30 per ton, according to strength, quantity and destination.

OXALIC ACID.—£59 5s. per ton for ton lots, carriage paid, in 5-cwt. casks; smaller parcels, 59s. 9d. to 60s. per cwt., ex store; deliveries slow.

***PARAFFIN WAX.**—GLASGOW: 3s. d. per lb.

POTASH, CAUSTIC.—Liquid, £25 to £30 per ton, according to quantity.

POTASSIUM BICHROMATE.—5s. d. per lb. carriage paid. GLASGOW: 5s. d. per lb., carriage paid.

POTASSIUM CHLORATE.—Imported powder and crystals, ex store London, 10d. to 1s. per lb.

POTASSIUM IODIDE.—B.P., 8s. to 11s. 2d. per lb., according to quantity.

POTASSIUM NITRATE.—Small granular crystals, £26 to £29 per ton ex store, according to quantity.

POTASSIUM PERMANGANATE.—B.P. 1s. 3½d. per lb.; commercial, 14s. per cwt., d/d.

POTASSIUM PRUSSIATE.—Yellow, about 1s. 8d. per lb., supplies scarce.

SALAMMONIAC.—Dog-tooth crystals, £42 per ton; medium, £38; fine white crystals, £16; in casks, ex store.

SALT CAKE.—Underground, spot, £3 15s. per ton.

SODA ASH.—Light 98/100%, £5 17s. 6d. per ton f.o.r. in bags.

SODA, CAUSTIC.—Solid, 76/77° spot, £14 per ton d/d station.

SODA CRYSTALS.—Spot, £5 to £5 5s. per ton d/d station or ex depot in 2-cwt. bags.

SODIUM ACETATE.—£25 to £26 per ton, ex wharf.

SODIUM BICARBONATE.—About £10 10s. to £11 10s. per ton, in bags.

SODIUM BICHROMATE.—Crystals, 4½d. per lb., net d/d U.K. with rebates for contracts. GLASGOW: 4½d. per lb., carriage paid.

SODIUM BISULPHITE POWDER.—60/62%, £12 10s. to £14 per ton d/d in 2-ton lots for home trade.

SODIUM CARBONATE MONOHYDRATE.—£20 per ton d/d in minimum ton lots in 2-cwt. free bags.

SODIUM CHLORATE.—£27 10s. to £32 per ton, d/d according to quantity.

SODIUM HYPOSULPHITE.—Pea crystals, £16 17s. 6d. per ton for 2-ton lots; commercial, £13 10s. per ton. MANCHESTER: Commercial, £13; photographic, £16 10s.

SODIUM IODIDE.—B.P., for not less than 28 lb., 8s. 10d. per lb.; for not less than 7 lb., 10s. 9d. per lb.

***SODIUM METASILICATE.**—£14 5s. per ton, d/d U.K. in cwt. bags.

SODIUM NITRATE.—Refined, £8 5s. per ton for 6-ton lots d/d.

SODIUM NITRITE.—£18 5s. per ton for ton lots.

SODIUM PERBORATE.—10%, £4 per cwt. d/d in 1-cwt. drums.

SODIUM PHOSPHATE.—Di-sodium, £16 to £17 per ton delivered for ton lots. Tri-sodium, £18 per ton delivered for ton lots.

SODIUM PRUSSIATE.—4½d. to 5½d. per lb.

SODIUM SILICATE.—£8 2s. 6d. per ton.

***SODIUM SULPHATE (GLAUBER SALTS).**—£3 per ton d/d.

SODIUM SULPHATE (SALT CAKE).—Underground spot, £3 to £3 10s. per ton d/d station in bulk. MANCHESTER: £4.

SODIUM SULPHIDE.—Solid 60/62%, Spot, £11 15s. per ton d/d in drums; crystals, 30/32%, £9 per ton d/d in casks. MANCHESTER: Concentrated solid, 60/62%, £13; crystals, £9 15s.

***SODIUM SULPHITE.**—Pea crystals, spot, £14 10s. per ton d/d station in kegs.

***SULPHUR PRECIP.**—B.P., £55 to £60 per ton according to quantity. Commercial, £50 to £55.

SULPHURIC ACID.—168° Tw., £4 11s. to £5 1s. per ton; 140° Tw., arsenic-free, £3 to £3 10s.; 140° Tw., arsenious, £2 10s.

TARTARIC ACID.—1s. 5½d. per lb., less 5%, carriage paid for lots of 5 cwt. and upwards. Makers' prices nominal; imported material 2s. 3d. to 2s. 6d. per lb., ex wharf. MANCHESTER: 1s. 5d. per lb.

ZINC OXIDE.—Maximum prices: White seal, £30 17s. 6d. per ton; red seal, £28 7s. 6d. d/d; green seal, £29 17s. 6d. d/d buyers' premises.

ZINC SULPHATE.—Tech., about £19 10s., carriage paid, casks free.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 9½d. to 1s. 6d. per lb., according to quality. Crimson, 1s. 7½d. to 1s. 10½d. per lb.

ARSENIC SULPHIDE.—Yellow, 1s. 6d. to 1s. 8d. per lb.

CARBON DISULPHIDE.—£29 to £34 per ton, according to quantity, in free returnable drums.

CARBON TETRACHLORIDE.—£48 to £53 per ton, according to quantity, drums extra.

CHROMIUM OXIDE.—Green, 1s. 3d. per lb.

INDIA-RUBBER SUBSTITUTES.—White, 5½d. to 6½d. per lb.; dark 5½d. to 6d. per lb.

LITHOPONE.—30%, £16 15s. per ton; 60%, £31 to £32 per ton. Imported material would be dearer.

SULPHUR CHLORIDE.—6d. to 8d. per lb., according to quantity.

VEGETABLE BLACK.—£35 per ton upwards; 28/30%, £15 10s. 0d.; 60%, £29, delivered buyers' premises.

VERMILION.—Pale or deep, 8s. 5d. per lb., for 7 lb. lots.

ZINC SULPHIDE.—About £63 per ton ex works.

Plus 5% War Charge.

Nitrogen Fertilisers

AMMONIUM SULPHATE.—Per ton in 6-ton lots d/d farmer's nearest station up to January 31, 1940, £9; February, £9 3s.; March/June, £9 6s.

CALCIUM CYANAMIDE.—£12 10s. for 5-ton lots per ton net f.o.r. or ex store, London. Supplies small.

“**NITRO-CHALK.**”—£8 18s. per ton, in 6-ton lots, d/d farmer's nearest station, January/June delivery.

CONCENTRATED COMPLETE FERTILISERS.—£11 18s. to £12 4s. per ton in 6-ton lots, d/d farmer's nearest station.

AMMONIUM PHOSPHATE FERTILISERS.—£11 14s. to £16 6s. per ton in 6-ton lots, d/d farmer's nearest station.

Coal Tar Products

BENZOL.—Industrial (containing less than 2% of toluol), 2s. to 2s. 1d. per gal., ex works, nominal.

CARBOLIC ACID.—Crystals, 9d. to 10d. per lb.; Crude, 60's, 3s. 3d. to 3s. 6d., according to specification. MANCHESTER: Crystals, 10d. to 11d. per lb., d/d; crude, 3s. 6d. to 3s. 9d.; naked, at works.

CREOSOTE.—Home trade, 5d. per gal., f.o.r., makers' works; exports 6d. to 6½d. per gal., according to grade. MANCHESTER: 4½d. to 6½d.

CRESYLIC ACID.—99/100%, 2s. 11d. to 3s. 3d. per gal., according to specification. MANCHESTER: Pale, 99/100%, 3s.

NAPHTHA.—Solvent, 90/160°, 1s. 8d. to 1s. 9d. per gal.; solvent, 95/60°, 2s., naked at works; heavy, 90/190°, 1s. 3d. to 1s. 5d. per gal., naked at works, according to quantity.

MANCHESTER: 90/160°, 1s. 6½d. to 1s. 9d. per gal.

NAPHTHALENE.—Crude, whizzed or hot pressed, £10 to £11 per ton; purified crystals, £16 per ton in 2-cwt. bags. LONDON: Fire lighter quality, £3 to £4 10s. per ton. MANCHESTER: Refined, £17 to £18.

PITCH.—Medium, soft, 35s. per ton, f.o.b. MANCHESTER: 37s. 6d. to 40s., f.o.b. East Coast.

PYRIDINE.—90/140°, 19s. to 20s. per gal.; 90/160°, 16s. to 18s. 6d.; 90/180°, 3s. 9d. to 4s. 6d. per gal., f.o.b. MANCHESTER: 17s. to 19s. 6d. per gal.

TOLUOL.—90%, 2s. 3d. per gal.; pure, 2s. 5d., nominal. MANCHESTER: Pure, 2s. 5d. per gal., naked.

XYLOL.—Commercial, 2s. 7d. per gal.; pure, 2s. 9d. MANCHESTER: 2s. 9d. per gal.

Wood Distillation Products

CALCIUM ACETATE.—Brown, £7 5s. to £8 per ton; grey, £10 to £12. MANCHESTER: Grey, £14.

METHYL ACETONE.—40.50%, £35 to £38 per ton.

WOOD CREOSOTE.—Unrefined, 1s. to 1s. 3d. per gal., according to boiling range.

WOOD NAPHTHA.—MISCIBLE.—3s. 7d. to 4s. per gal.; solvent, 4s. to 4s. 6d. per gal.

WOOD TAR.—£4 to £5 per ton, according to quality.

Intermediates and Dyes

ANILINE OIL.—Spot, 8d. per lb., drums extra, d/d buyer's works.

ANILINE SALTS.—Spot, 8d. per lb. d/d buyer's works, casks free.

BENZALDEHYDE.—1s. 10d. per lb., for cwt. lots, net packages.

BENZIDINE.—HCl.—2s. 7d. per lb., 100% as base, in casks.

BENZOIC ACID.—1914 B.P. (ex toluol).—1s. 11d. per lb. d/d buyer's works.

m-CRESOL.—98/100%, 1s. 8d. to 1s. 9d. per lb. in ton lots.

o-CRESOL.—30/31° C.—6½d. to 7½d. per lb. in 1-ton lots.

p-CRESOL.—34/35° C.—1s. 7d. to 1s. 8d. per lb. in ton lots.

DICHLORANILINE.—2s. 1½d. to 2s. 7d. per lb.

DIMETHYLANILINE.—Spot, 1s. 7½d. per lb., package extra.

DINITROBENZENE.—8d. per lb.

DINITROCHLOROBENZENE.—SOLID.—£79 5s. per ton.

DINITROTOLUENE.—48/50° C., 9d. per lb.; 66/68° C., 11½d.

DIPHENYLAMINE.—Spot, 2s. 3d. per lb.; d/d buyer's works.

GAMMA ACID.—Spot, 4s. 4½d. per lb. 100%, d/d buyer's works.

H ACID.—Spot, 2s. 7d. per lb.; 100%, d/d buyer's works.

NAPHTHIONIC ACID.—1s. 10d. per lb.

β-NAPHTHOL.—£97 per ton; flake, £94 8s. per ton.

α-NAPHTHYLAMINE.—Lumps, 1s. 1d. per lb.

β-NAPHTHYLAMINE.—Spot, 3s. per lb.; d/d buyer's works.

NEVILLE AND WINTHROP'S ACID.—Spot, 3s. 3½d. per lb. 100%.

o-NITRANILINE.—4s. 3½d. per lb.

m-NITRANILINE.—Spot, 2s. 10d. per lb. d/d buyer's works.

p-NITRANILINE.—Spot, 1s. 10d. to 2s. per lb. d/d buyer's works.

NITROBENZENE.—Spot, 4d. to 5½d. per lb., in 90-gal. drums, drums extra, 1-ton lots d/d buyer's works.

NITRONAPHTHALENE.—10d. per lb.; P.G., 1s. 0½d. per lb.

SODIUM NAPHTHIONATE.—Spot, 1s. 11d. per lb.; 100% d/d buyer's works.

SULPHANILIC ACID.—Spot, 8½d. per lb. 100%, d/d buyer's works.

o-TOLUIDINE.—11d. per lb., in 8/10 cwt. drums, drums extra.

p-TOLUIDINE.—2s. per lb., in casks.

m-XYLIDINE ACETATE.—4s. 5d. per lb., 100%.

Latest Oil Prices

LONDON, January 31.—For the period ending February 3, per ton, naked, ex mill, works or refinery and subject to additional charges according to package and location of supplies:—

LINSEED OIL.—raw, £40 10s. RAPESEED OIL, crude, £44 5s.

COTTONSEED OIL.—crude, £26; washed, £28 15s.; refined edible, £29 12s. 6d.; refined deodorised, £30 10s. SOYA BEAN OIL, crude, £27; refined deodorised, £31. COCONUT OIL, crude, £22 2s. 6d.; refined deodorised, £25 7s. 6d. PALM KERNEL OIL, crude, £21 10s.; refined deodorised, £24 15s. PALM OIL, refined deodorised, £27. GROUNDNUT OIL, crude, £29 10s.; refined deodorised, £34. WRALE OIL, crude hardened, 42 deg., £24 10s.; refined hardened, 42 deg., £27. ACID OILS.—Groundnut, £20; soya, £18; coconut and palm kernel, £18 10s. Non-controlled commodities were unaltered. ROSIN, 25s. to 35s. per cwt., ex wharf, according to grade. TURPENTINE, 54s. 9d. per cwt., spot. American, including tax, ex wharf, barrels and ex discount.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for errors that may occur.

Mortgages and Charges

(Note.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every company shall, in making its Annual Summary, specify the total amount of debt due from the company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.)

ERNEST J. COLE & PARTNERS LTD., Bristol, dealers in oils, etc. (M., 3/2/40.) Jan. 20, £225 mortgage, to Mrs. A. R. Devenish, Bristol; charged on 15 Kings Road, Clifton, Bristol. *Nil. Feb. 28, 1939.

H. & T. PROCTOR LTD., Bristol, manufacturers of manures, fertilisers. (M. 3/2/40.) Jan. 19, charge, to National Provincial Bank, Ltd., securing all moneys due or to become due to the Bank from Norrington, Hingston and Co., Ltd.; charged on deposit accounts or credit balances of the company with the Bank. £5,000. Oct. 24, 1939.

NORRINGTON, HINGSTON AND CO., LTD., Bristol, manure manufacturers. (M., 3/2/40.) Jan. 19, charge, to National Provincial Bank, Ltd., securing all moneys due or to become due to the Bank from H. and T. Proctor, Ltd.; charged on deposit accounts or credit balances of the company with the Bank. *£5,000. Oct. 24, 1939.

SOUTH WALES MAGNESIA, LTD., London, W.C. (M., 3/2/40.) Jan. 17. £1,000 debentures (dated Dec. 29, 1939), part of a series already registered. Note.—On particulars filed at Registry Nov. 8, 1939, the amount issued on October 31, 1939, was shown in error as £2,500 and should have read £1,000. *£2,000. Dec. 31, 1939.

Satisfactions

SOUTH WALES RED OXIDE AND COLOUR CO., LTD., Swansea. (M.S., 3/2/40.) Satisfaction Jan. 22, of debenture registered Dec. 13, 1928.

County Court Judgments

TENZ, LTD. (C.C., 3/2/40.) Tenz House, 13 Norfolk Place, W.2, manufacturing chemists. £14 3s. 10d. Nov. 2.

ZEMS, LTD. (C.C., 3/2/40.) Gladstone Laboratories, 113 Park Avenue, Willesden Green; registered office, 48 Cannon Street, E.C.4, manufacturing chemists. £20 7s. 2d. Dec. 21.

Companies Winding-Up Voluntarily

CALLINGTON ZINC OXIDE CO., LTD. (C.W.U.V., 3/1/40.) William Charles Morgan, of Lloyds Bank Chambers, Plymouth, appointed liquidator.

New Companies Registered

DIXON CHEW (BATLEY), LTD. (358,587).—Private company. Capital £2,000 in 2,000 shares of £1 each. To carry on the business of manufacturers of and dealers in dyes, chemicals, gases, drugs, medicines, plaster of paris, etc. Directors: Kenneth Dixon Chew, 44 Upper Batley Lane, Batley, dye merchant, Mrs. Dorothy Chew, Mrs. Eveline Chew, John Hirst.

FLACKS BACTERIA MANURES, LTD. (358,640).—Private company. Capital, £1,000 in 1,000 ordinary shares of £1 each. To acquire the business of a manufacturer of bacterium manures and fertilisers carried on by Harold S. Flack at Beke Hall Chase, London Road, Rayleigh, Essex. Directors: Harold S. Flack, Ernest G. Edwards. Registered office: Creek House, High Street, Kingston-on-Thames, Surrey.

CHENIUM PRODUCTS, LTD. (358,576).—Private company. Capital £1,000 in 1,000 shares of £1 each. To carry on the business of manufacturers of and dealers in chemical compounds and preparations, oils, oleaginous and saponaceous substances, acids, soaps, salts, alkalis, etc. Subscribers: Philip Fisher, Thomas Stanley. First director: Philip Fisher. Registered office: 21/23 Chiswell Street, E.C.1.

WESTBURY AND SEEND ORE AND OXIDE COMPANY, LTD. (358,601).—Private company. Capital £2,000 in 2,000 shares of £1 each. To carry on the business of quarry and mine owners and workers, manufacturers of and dealers in ores, iron, coal, oils, oxides, chemicals, sand, gravel, ballast, chalk, lime, etc. Directors: Joseph Smith, John O. H. Siddall, and Joan E. R. Siddall. Registered office: 13 Abbey Churchyard, Bath.

ADHESIVE AND ALLIED PRODUCTS, LTD. (359,037).—Private company. Capital £100 in 100 shares of £1 each. To carry on the business of manufacturers and workers of and dealers in cements, glues and all other kinds of adhesive substances, and all chemical or other substances, etc. Subscribers: Marjorie E. Cook, Shell-Mex House, Strand, W.C.2; L. Hyams, Solicitor; H. Norman Freedman, M.A., Shell-Mex House, Strand, W.C.2.

MIDWAY CHEMICAL CO. (IRE), LTD. (9,920).—Private company. Registered in Dublin. Capital £500 in 500 shares of £1 each. To carry on the business of manufacturers of and dealers in insecticides, disinfectants, chemicals, gases, drugs, medicines, etc. Subscribers: William Leaware, 64 Dawson Street, Dublin; Celia Dunleavy; John N. Grace. Directors: Ephraim L. Jackson, Jacob Jackson, and Ray Jackson.

O. H. BELL, LTD. (359,006).—Private company. Capital £1,000 in £1 shares. To carry on the business of manufacturers of or dealers in all kinds of graphite, oil, paint, waterproofing and road compounds, grease, tallow, cement, powders, polishes, wastes, chemicals and chemical substances, etc. Subscribers: Owen H. Bell, Mrs. Alice N. Bell. Owen H. Bell shall be permanent director and chairman so long as he holds 200 shares. Secretary: Miss Mary G. Tait. Solicitors: Redpath, Marshall and Holdsworth, 23 Bush Lane, E.C.4. Registered office: 232 Ealing Road, Wembley, Middlesex.

Chemical and Allied Stocks and Shares

GLT-EDGED securities and other front rank investment stocks have continued to attract chief attention in the stock and share markets. Industrial shares were somewhat less active, but movements in prices were small, and the undertone of markets continued to have a firm appearance. Imperial Chemical ordinary were slightly higher at 31s., aided by continued market hopes that the dividend may be maintained on an 8 per cent. basis, while the 7 per cent. preference units have been marked up further to 33s., which compares with 31s. 6d. a week ago. B. Laporte were unchanged at 60s. but continued firmly held, and Fison Packard were again quoted at 36s. 10½d. Lever and Unilever ordinary were little changed at 29s. 9d.; the 7 per cent. and 8 per cent. preference have moved up further to the common level of 28s. 9d. There was a fair amount of activity in Borax Consolidated deferred, awaiting the dividend announcement, but at 24s. 9d. the price was unchanged on balance. Hopes that it may be possible to keep the dividend at 17½ per cent. drew some attention to Blythe Colour Works 4s. ordinary shares, which at 7s. 6d. have more than held the rise shown a week ago. British Glues were better at 6s. 9d., but British Lead Mills made the lower price of 2s. 6d. Cooper McDougall and Robertson remained at 21s. 3d., but were firmly held. On the other hand, Burt, Boulton and Haywood were marked down to 13s. 9d., although there were few shares available at around this level. In other directions Imperial Smelting had a steadier appearance, and at 12s. 4½d. were unchanged on the week, while Michael Nairn moved up to 55s., and at 29s. 6d. Barry and Staines were again higher on balance. British Drug Houses held their recent rise to 23s. 9d.

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Courtaulds have been active around 36s. awaiting the forthcoming dividend announcement. Market estimates of the total payment for

the past year vary from 6 per cent. to 8 per cent. It may be recalled that the interim payment was 2 per cent. British Celanese ordinary and preference were firm, as were Lansil ordinary, but cotton and other textile securities were less active this week and were moderately reactionary, the disposition being to await the forthcoming results of Bradford Dyers. Iron and steel shares remained rather more active, but following last week's sharp improvement a certain amount of profit-taking was observable, although sentiment benefited from the decision in respect of iron and steel prices, which will assist in offsetting higher production costs. Leading iron and steel concerns are very actively employed, and despite higher taxation, the market is still hopeful that dividends may be around the same levels as for the previous year. Babcock and Wilcox ordinary were firm at 44s. 6d., as were Tube Investments at 92s., and Dorman Long at 27s. 4½d. Associated Cement were dull at 48s. 9d. and British Plaster Board transferred around 22s. 6d.

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British Oxygen were 71s. 10½d., while British Match improved to 33s. 9d., and a fairly steady tendency was observable in Turner and Newall, British Aluminium, Cerebos, Reckitt ordinary, and other widely-held shares. Dunlop Rubber fluctuated moderately around 20s. 3d.; results of the last named company are due to be issued next month.

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Elsewhere, Greiff-Chemicals Holdings 5s. units continued to be quoted at par, but General Refractories were slightly lower at 8s. 3d. Boots Drug were steady at 40s. Beecham's Pills deferred were 7s. 10½d., Sangers 20s. 3d. and Timothy Whites 29s. Triplex Glass were lower at 18s. 6d., but United Glass Bottle and Canning Town Glass shares were firmly held, awaiting the results, due next month. "Shell" and other oil shares were slightly lower on balance.

